

### **REMARKS/ARGUMENTS**

The Applicants originally submitted Claims 1-9 in the application. In a previous response, the Applicants amended Claims 1-4 and 6-9 and added Claim 10. In the present response, the Applicants have not amended, added or canceled any claims. Accordingly, Claims 1-10 are currently pending in the application.

#### **I. Formal Matters and Objections**

The Examiner has objected to the specification for failing to provide proper antecedent basis for the claimed subject matter. In response, the Applicants have amended the specification as indicated above to provide the proper antecedent basis for “a continuum of delay lengths” in the specification. The amendment does not add new matter since support for “a continuum of delay lengths” is in the original specification at page 5, line 6, to page 6, line 24. More specifically, the original specification discloses embodiments of continuously variable optical delay devices that provide a continuum (*i.e.*, a continuous quantity or series) of delay lengths. Accordingly, the Applicants respectfully request that the Examiner withdraw the objection to the specification and allow issuance of the application.

The Examiner also objects to Claim 1 asserting the phrases “a continuum of delay lengths” and “said received optical signal by a continuous delay length” are confusing. In particular, the Examiner questions if the continuum of delay lengths refers to the combined delay created by both the incrementally variable optical delay line and the continuously variable optical delay line. Additionally, the Examiner questions whether received optical signal is delayed by the

incrementally variable optically delay line or the continuously variable optical delay line. (See Examiner's Action, page 2.)

As indicated in the above discussion, the continuum of delays lengths is provided by the continuously variable optical delay line. Regarding the received optical signal, it is delayed by **both** the incrementally variable optical delay line **and** the continuously variable optical delay line. This is indicated in Claim 1 by the use of "said" received optical signal. In other words, the same received optical signal that is delayed by the incrementally variable optical delay line is also delayed by the continuously variable optical delay line. Based on the above discussion, the Applicants respectfully request the Examiner to withdraw the objection of Claim 1 and allow issuance thereof.

## **II. Rejection of Claims 1, 2, 4 and 7 under Nonstatutory Double Patenting**

The Examiner has rejected Claims 1, 2, 4 and 7 under nonstatutory double patenting as being unpatentable over Claims 1-9 of U.S. Patent No. 6,934,431 to Braun, *et al.* The Applicants respectfully disagree.

Claims 1-8 of Braun do not teach or suggest a continuously variable optical delay line as recited in Claim 1 of the present invention. As such, Braun also does not teach or suggest a continuously variable optical delay line that delays a received optical signal by a continuous delay length having a range substantially encompassing a delay increment associated with the incrementally variable optical delay line. Instead, Claims 1-8 of Braun are directed to an incrementally variable optical delay line. (See column 4, lines 18-53.) Thus, while Claims 1-8 of Braun may disclose one element of Claim 1, an incrementally variable optical delay line, Claims 1-

8 of Braun provide no teaching or suggestion for each and every element of independent Claim 1 of the present invention. Independent Claim 1 and dependent Claims 2, 4 and 7, therefore, are patentably distinct from Claims 1-8 of Braun. Accordingly, the Applicants respectfully request the Examiner to withdraw the nonstatutory double patenting rejection of Claims 1-2, 4 and 7 and allow issuance thereof.

### **III. Rejection of Claims 1-3 and 10 under 35 U.S.C. §102**

The Examiner has rejected Claims 1-3 and 10 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,784,416 to Biyikli. The Applicants respectfully disagree.

Biyikli relates to polarization transformation of optical signals exhibiting polarization mode dispersion. (*See* column 1, lines 7-10.) Biyikli discloses a polarization transformer 100 including a continuously adjustable retarder and a limited-range adjustable retarder. (*See* column 4, lines 17-19 and Figure 1.) The continuously adjustable retarder, however, is not a continuously variable optical delay line. More particularly, the continuously adjustable retarder is not a continuously variable optical delay line configured to delay a received optical signal by a continuous delay length selected from a continuum of delay lengths. Instead, the continuously adjustable retarder is used to effect a desired polarization transformation of an input optical signal. (*See* column 4, lines 27-39.) Thus, the continuously adjustable retarder also does not delay a received optical signal by a continuous delay length selected from a continuum of delay lengths having a range substantially encompassing a delay increment associated with an incrementally variable optical delay line. Biyikli, therefore, does not teach a continuously variable optical delay line configured to delay a received optical signal by a continuous delay length selected from a

continuum of delay lengths having a range substantially encompassing a delay increment associated with an incrementally variable optical delay line as recited in independent Claim 1.

Since Biyikli does not teach each and every element of independent Claim 1, Biyikli does not anticipate Claim 1 and Claims dependent thereon. Accordingly, the Applicants respectfully request the Examiner to withdraw the §102 rejection with respect to Claims 1-3 and 10.

#### **IV. Rejection of Claims 4-9 under 35 U.S.C. §103**

The Examiner has rejected Claims 4-9 under 35 U.S.C. §103(a) as being unpatentable over Biyikli in view of U.S. Patent No. 6,289,151 to Kazarinov, *et al.* The Applicants respectfully disagree.

As discussed above, Biyikli does not teach each element of independent Claim 1. Additionally, Biyikli does not suggest each element of independent Claim 1. In fact, the Applicants do not find any teachings or suggestions of an incrementally variable optical delay line or a continuously variable optical delay line in Biyikli. Instead, Biyikli is directed to effecting polarization changes on input signals through the use of optical retarders. (*See* column 1, lines 7-10 and column 4, lines 27-39.) Biyikli, therefore, does not teach or suggest each and every element of independent Claim 1.

Kazarinov discloses an all-pass optical filter that reduces dispersion of optical pulses passing therethrough by applying a desired phase response to the optical pulses. (*See* column 5, lines 38-42.) As recognized by the Examiner in the previous Examiner's Office Action (*see* page 2), Kazarinov does not teach an incremental variable optical delay line. In fact, Kazarinov has not been cited to cure the above deficiencies of Biyikli but to teach types of continuously variable optical delay lines.

(See Examiner's Action, page 4.) Thus, while Kazarinov may disclose continuously variable optical delay lines, Kazarinov does not teach or suggest a continuously variable optical delay line configured to delay a received optical signal by a continuous delay length selected from a continuum of delay lengths having a range **substantially encompassing a delay increment of an incrementally variable optical delay line** that is optically and serially coupled thereto as recited in independent Claim 1.

The cited combination of Biyikli and Kazarinov, therefore, fails to teach or suggest each element of independent Claim 1 and Claims dependent thereon. Thus, the cited combination of Biyikli and Kazarinov fails to provide a *prima facie* case of obviousness of Claim 1 and Claims dependent thereon. As such, dependent Claims 4-9 are not unpatentable in view of the cited combination. Accordingly, the Applicants respectfully request the Examiner withdraw the §103(a) rejection of Claims 4-9 and allow issuance thereof.

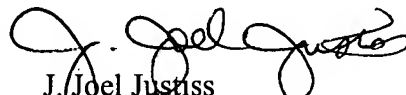
**V. Conclusion**

In view of the foregoing remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-10.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 08-2395.

Respectfully submitted,

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